

What is claimed is:

1. A manufacturing method for liquid crystal display panels having a high aperture ratio, comprising the steps of:

5 providing a transparent substrate with thin film transistors forming therein, and the periphery of the transparent substrate having an outer lead bonding area formed by covering an insulation layer over metal wires;

forming a protection layer over the thin film transistors of the transparent substrate and outer lead bonding area;

10 applying a photo-etching process by a half-tone mask to the protection layer so as to remove a part of the protection layer at the outer lead bonding area for exposing the insulation layer on which outer lead bonding pads are predefinedly located; and

15 etching the remaining protection layer and the exposed insulation layer for exposing upper portions of the insulation layer and generating via holes through the insulation layer so as to expose the metal wires.

2. The manufacturing method for liquid crystal display panels having a high aperture ratio of Claim 1, wherein the protection layer above the thin film transistors has at least one via hole formed by the etching process.

20 3. The manufacturing method for liquid crystal display panels having a high aperture ratio of Claim 2, further comprising the step of:

forming a transparent conductive layer on the protection layer and inside the via holes so as to electrically contact the thin film transistors.

25 4. The manufacturing method for liquid crystal display panels having a high aperture ratio of Claim 1, wherein the thin film transistor is a transistor having an etching structure.

5. The manufacturing method for liquid crystal display panels

having a high aperture ratio of Claim 1, wherein the thin film transistor is a transistor having a back-channel etching structure.

5 6. The manufacturing method for liquid crystal display panels having a high aperture ratio of Claim 1, wherein the exposed portions of the metal wires are the outer lead bonding pads.

7. The manufacturing method for liquid crystal display panels having a high aperture ratio of Claim 1, wherein the protection layer is made from a transparent organic material.

10 8. The manufacturing method for liquid crystal display panels having a high aperture ratio of Claim 7, wherein the organic material is acrylate.

9. The manufacturing method for liquid crystal display panels having a high aperture ratio of Claim 1, further comprising the step of:

15 sealing the liquid crystal display panel by pasting a sealant on the exposed portions of the insulation layer.

10. The manufacturing method for liquid crystal display panels having a high aperture ratio of Claim 1, further comprising the step of:

interposing a silicon nitride layer between the insulation layer and the protection layer.

20 11. The manufacturing method for liquid crystal display panels having a high aperture ratio of Claim 1, wherein the protection layer is a photoresist layer.